APPENDIX B: DESIGN SUBMITTALS AND DOCUMENTATION

B.1 Block Plan Submittal (S-1). Block Plans shall include at least three substantially different alternative design solutions. For less complex projects the number may be reduced as coordinated with the using agency, and the design agents medical facilities design office or center. The intent is to either select one of the three schemes or develop a composite scheme for room-by-room floor plan development in S4. Each block plan will show building massing, siting, and the layout of the gross function areas (blocks) within the building. The following are the requirements for the Block Plan effort:

B.1.1 Site plans of each scheme showing existing and proposed structures, topography, utilities, roads, and parking.

B.1.2 Floor plans for each scheme showing each level with circulation patterns and principal dimensions. On addition/alteration projects, existing versus new conditions must be clearly delineated.

B.1.3 Description of each scheme and strong and weak points of solution and the rationale for the solution. The following features must be addressed for each scheme: expandability, flexibility, any cost variations, proposed structural system, proposed mechanical system(s), electrical system, energy conservation features, phasing, and initial constructability considerations.

B.1.4 Either a site investigation report or Project Book information will address the existing and proposed conditions on and near the site including: demolition requirements (if any), topography, adjacent facilities, site vegetation, access roads, easements, safety clearances, site acoustics, parking (existing and proposed), soil conditions, floodplains or wetlands criteria, asbestos and hazardous waste on-site, and energy considerations such as building orientation, solar access, and prevailing wind conditions. Provide a summary of any environmental impact studies, base master plans and base architectural plans where available. Provide photographs of the site and nearby structures.

B.1.5 Either a site utilities report or Project Book information will address: storm drainage, sewer, water (potable and fire protection), gas, central heating and cooling, electricity, telephone, fire alarm, and communications. Address the quality and capacity of the existing utilities to serve the proposed project and any demolition required.

B.1.6 Sketch perspectives for each proposed solution as directed by the design agent and/or the using service.

B.1.7 The narrative portion of the submittal, calculations, cost estimate, and reports shall be properly bound and formatted.

B.2 Schematic Design Submittal (S-2). This submittal includes development of the room-by-room floor plans, elevations, and initial analysis of the major architectural and engineering systems based on the selected (or composite) block plan from S-1. The primary purpose of this submittal and review is to identify and resolve all major space program deficiencies at an early stage in design, develop the massing and aesthetics of the facility, and "fix" the scope of the building. The Design Agent, using Military department representatives, and A-E, if required, will present the reviewed S-2 to DMFO. Requests for scope revisions with justification should be submitted at this time. Scope changes will not be entertained after approval of S-2 unless fully justified. DMFO will provide approval/disapproval, with review comments, within 14 days of the presentation. The following are the minimum requirements for S-2:

B.2.1 Executive Summary of the following:

- Block Plan selected from S-1, and rationale for the selected scheme. The primary block plan drawings from S-1 shall be included as double-page, fold-out, reduced drawings.

- Summary of the narrative describing various proposed architectural and engineering aspects of the projects.

B.2.2 Site plans showing building location, future expansion, and existing and proposed structures, topography, utilities, roads and parking.

B.2.3 Floor plans for each floor showing all programmed spaces, corridors, structural grid system (including columns), electrical and mechanical equipment rooms, and stairs/elevators/escalators to meet the functional requirements. All spaces must be labeled with the room name, the room code from the DMFO Program For Design (PFD), and the programmed and designed net areas. For addition/alteration projects, preliminary demolition drawings, with photographs to depict conditions are required. Separate circulation plans maybe required by the design agent and/or the using service. MEP room space design shall be based on preliminary estimates of equipment capacity and building demand.

B.2.4 Plans showing major circulation paths in and around the facility, as directed by the Agent, for complex projects.

B.2.5 Exterior elevations and major building sections appropriate to the level of Concept Design development. To assure Post or Base compatibility, observe and document the physical features of the site and the character/style of any surrounding building(s).

B.2.6 A separate plan of the Chemical Biological Radiological Nuclear Explosion (CBRNE) protected area, if programmed, showing how the spaces would functionally operate.

B.2.7 Plans showing single lines drawing of the distribution systems of major mechanical, electrical/communications, and plumbing (MEP) from the MEP rooms to the areas served as required by the design agent and/or the using service.

B.2.8 A comprehensive narrative describing various proposed architectural and engineering aspects of the projects as follows:

B.2.8.1 Civil Design Narrative. Refine the S-1 site investigation report and utilities reports.

B.2.8.2 Architectural Design Narrative. Address the overall architectural concept including: Exterior wall systems and finish materials being considered, acoustics, base architectural plan, floor-to-floor heights, proposed roofing materials, slope(s), styles, energy conservation features, life safety, and fire protection features, and Uniform Federal Accessibility Standards (UFAS) compliance;

B.2.8.3 Structural Design Narrative. A recommended selection of a structural system based on an economic study. The structural system selected shall be the one which best combines economy and suitability regarding functionality, design systems, space configuration, architectural features and seismic (Section 6) resistance configuration for the specific project. Narrative justification, describing the basis for system selection, along with drawings of the selected structural system adequately developed so that no additional major engineering decisions are required, shall be provided. The economic study shall employ a method which considers all factors and requirements of the system's total life cycle costs;

B.2.8.4 Seismic Design Narrative. Summarize the seismic design considerations including "I" and "K" values and the level of protection required. Discuss post-earthquake operation requirements;

B.2.8.5 Heating, Ventilation, and Air Conditioning (HVAC) Design Narrative. Discuss design considerations and space requirements for the primary and secondary HVAC systems being considered. Provide a written description of the anticipated smoke control system, passive or active.

B.2.8.6 Plumbing Design Narrative. Discuss design considerations and space requirements for the various plumbing systems, including domestic hot and cold water, fuel gas, medical gases, sanitary waste, acid waste, and storm drains. Discuss water supply, quality, required storage, and distribution systems. Discuss hot water generation, storage,

temperatures, and distribution systems. Address various types of medical gases, storage, and distribution systems;

B.2.8.7 Electrical Design Narrative. Discuss design considerations and space requirements for electrical systems. Address the following: voltage, routing, and reliability of primary services; connected and demand load; normal and essential electrical system; emergency power; lighting systems; and energy conservation features;

B.2.8.8 Communication Design Narrative. Discuss design considerations and space requirements for the following: telephone, intercom, dictation, paging, public address, televisions, nurse call, Comprehensive Healthcare [Computer] Systems (CHCS), data communication, and security systems; uninterruptible power supply (UPS);

B.2.8.9 Fire Protection Design Narrative: Address the following: type of construction, fire rating of materials, occupancy classification, fire detection, alarm, and suppression systems. Provide a summary of the latest Fire Safety Evaluation System Study for addition/alteration projects;

B.2.8.10 If interstitial building spaces for utility distribution are included in the project discuss fire protection, structural, and other aspects of the design;

B.2.8.11 If an Engineered Smoke Control System (ESCS) is planned, provide an economic justification;

B.2.8.12 Construction Phasing Narrative. For addition/ alteration projects, provide a narrative description of the proposed Construction Phasing to evaluate the continued/uninterrupted operation of the existing facility during construction and the associated impact on the construction cost. Identify requirements for temporary buildings to serve as swing space during the construction and the cost associated with these buildings; and

B.2.8.13 Antiterrorism Force Protection Narrative. Discuss siting and design considerations, and any space requirements for antiterrorism force protection systems. Include confirmation of installation's approval.

B.2.9 Gross area tabulation of floor area, along with a small scale, single-line, dimensioned key plan, to reflect the total space required in Figure 2-5 format.

B.2.10 Net area tabulations of the deviated spaces exceeding the allowable plus or minus 10 percent.

B.2.11 A net-to-gross area conversion summary comparing the as-designed

condition with the applicable net-to-gross square feet allowances in Figure 2-8.

B.2.12 Updated cost estimate.

B.2.13 The narrative portion of the S-2 submittal, calculations, and cost estimate shall comply with paragraph B.4.2.

B.3 Concept Design Submittal (S-3). This submittal is about 30 percent of the total design effort in all disciplines and includes further development of DMFO-approved S-2 submittal. The purpose of this submittal is to finalize all major design/engineering decisions and to validate project scope and cost. DMFO does not normally review this submittal; however, if the design is developed well enough, it may be submitted to DMFO as the S-4. The following are minimum requirements for this submission:

B.3.1 An update of all requirements in the S-2 Submission.

B.3.2 An Executive Summary (in addition to the other submittal requirements) to include design intent, proposed architectural engineering systems, results of VE study, phasing plans, costs, scope, and a general description of the project. Include sufficient detail to provide an overview of the project.

B.3.3 Plans showing design in sufficient detail to allow for an in-depth review and a reliable cost estimate. As a minimum, provide the following:

B.3.3.1 Site plans showing building location, future expansion, existing and proposed structures, topography, utilities, roads, parking, and landscaping;

B.3.3.2 Floor plans for each floor showing all programmed spaces, corridors, structural grid system (including columns), electrical/communications/ mechanical equipment rooms, and stairs/elevators/escalators to meet the functional requirements. All spaces must be labeled with the room name, the room code from the DMFO program for design, and the programmed and designed net areas;

B.3.3.3 All exterior elevations and major building sections;

B.3.3.4 Reflected ceiling plans showing ceiling grid and light fixture placement;

B.3.3.5 Equipment plans showing all Categories A, B, C, D, E, F, and G equipment. Show Category A, B, and E equipment on the equipment drawings and floor plans with solid lines and Category C and F equipment with

dashed lines. Provide Joint Schedule Numbers (JSN) as indicated in the Medical Facility Room Contents List (MFRCL) for all applicable logistical categories.

B.3.3.6 HVAC plans showing layout of mechanical rooms with all major equipment and one line drawing of distribution systems. Distribution mains shall be dimensioned;

B.3.3.7 Plumbing plans showing plumbing, medical air, vacuum, and medical gas equipment and major distribution lines. Water supply and gravity drainage mains shall be dimensioned.

B.3.3.8 Electrical plans showing electrical room layouts, light fixture locations, receptacle locations, motor controls, and locations of panelboards and distribution equipment. Provide single line diagrams of the normal/ essential electrical systems, emergency power, and UPS;

B.3.3.9 Communication plans showing location of communication equipment and devices. Show layout of communication closets and provide single line diagram for each system;

B.3.3.10 Fire protection and life safety plans showing sprinklered areas, fire rated walls and doors, smoke compartmentation, fire pumps, stand pipes, fire extinguisher cabinets, fire alarm, and fire exits. Show the occupancy classifications and maximum travel distances to smoke and fire barriers.

B.3.3.11 For addition/alteration projects, preliminary demolition drawings indicating the removal of structural, architectural, mechanical/electrical/communications systems, asbestos and hazardous materials.

B.3.4 A comprehensive narrative describing various architectural and engineering systems being considered:

B.3.4.1 Civil Design Narrative. Include the site investigation and utilities reports based on further refinement of the S-2 requirements. Summarize the civil design parameters, parking, and the major features of the design;

B.3.4.2 Architectural Design Narrative. Address the overall architectural concept including: interior (in accordance with Appendix A) and exterior finish materials wall systems, roofing systems, acoustics, base architectural plan, floor-to-floor heights, contingency and mobilization features, energy conservation features, UFAS features;

B.3.4.3 Structural Design Narrative. Address the selected structural foundation and framing systems considered and provide economic basis

for system selection. Summarize the structural design parameters and the major features of the design;

B.3.4.4 Seismic Design Narrative. Summarize the seismic design considerations including "I" and "K" values and the level of protection required. Discuss post-earthquake operation requirements;

B.3.4.5 Heating, Ventilation, and Air Conditioning (HVAC) Design Narrative. Provide a summary of the primary and secondary HVAC systems considered and the economic basis for system selection. Summarize the proposed control systems, fire protection features, and the energy conservation features being considered;

B.3.4.6 Plumbing Design Narrative. Describe the various plumbing systems, including domestic hot and cold water, fuel gas, medical gases, sanitary waste, acid waste, and storm drains. Discuss water supply, quality, required storage, and distribution systems. Discuss hot water generation, storage, temperatures, and distribution systems. Address various types of medical gases, storage, and distribution systems;

B.3.4.7 Electrical Design Narrative. Summarize the electrical design parameters and the major features of the design. Address the following: voltage, routing, and reliability of primary services; connected and demand load; normal /essential/emergency electrical system; lighting systems; and energy conservation features;

B.3.4.8 Communication Design Narrative. Summarize the communication systems design parameters and the major features of the design. Discuss the following: telephone, intercom, dictation, paging, public address, television, nurse call, CHCS, data communication, and security systems;

B.3.4.9 Fire Protection Design Narrative: Summarize the fire protection systems design parameters and the major features of the design. Address the following: type of construction, fire rating of materials, life safety features, occupancy classification, fire detection, alarm, and suppression systems. Provide a summary of the latest Fire Safety Evaluation System Study for addition/alteration projects;

B.3.4.10 Interstitial Building System Narrative: If an Interstitial Building System was approved at S-2, update the design parameters and the major features of the design;

B.3.4.11 Engineered Smoke Control System (ESCS) Narrative. If an ESCS was approved at S-2, provide a summary of the ESCS design parameters and the major features of the design;

B.3.4.12 Energy Conscious Design Narrative. Discuss all energy conscious design considerations implemented and considered for the design. Confirm

energy budget compliance;

B.3.4.13 Food Service Narrative (when applicable). Summarize the food service systems design parameters and the major features of the design. Discuss the various systems considered and the economic basis for the system selections;

B.3.4.14 Materials Handling and Transportation Systems Narrative (when applicable). Summarize the materials handling and transportation systems design parameters and the major features of the design. Include escalators, elevators, cart lifts, automatic box conveyor systems, dumb-waiters, linen and trash chutes, pneumatic tubes, etc. The study is to include equipment requirements life-cycle-costs, maintenance, appearance, ease of operation, noise, security, maintainability, and availability in a competitive marketplace for each system;

B.3.4.15 Waste Handling Systems Narrative (when applicable). Summarize the waste handling systems design parameters and the major features of the design. Address trash removal; hazardous, infectious, and biological waste; retort sterilizers; incinerators; and other waste handling features of the design;

B.3.4.16 Security Systems Narrative. Summarize the security systems design parameters and the major features of the design; and

B.3.4.17 Antiterrorism Force Protection Narrative. Summarize the antiterrorism force protection system design parameters and the major features of the design.

B.3.5 Detailed Cost Estimate.

B.3.6 An updated DD Form 1391 reflecting the reviewed cost estimate, any changes to the project description, and justification.

B.3.7 Gross area tabulation of floor area, along with small scale, single-line, dimensioned drawings, to reflect the total space required in Figure 2-5 format.

B.3.8 Update of S-2 net area tabulations.

B.3.9 Outline specifications showing basic intent.

B.3.10 Room finishes schedule keyed to the plans by room number and name. Include proposed Structural Interior Design (SID) color scheme/selections, see paragraph 4.14. Provide color boards with samples of major finishes or pictures there of.

B.3.11 Equipment list showing all category A, B, C, D, E, F and G

equipment for each room keyed to the plans by room number and name. Provide equipment data sheets for all equipment that requires utility connections. The AE must develop the initial official project MFRCL into a viable room-by-room listing. Coordinate substitutions or changes with the using Military Department. The type, quantity, and location of biological, radioisotope, fume, canopy, and laminar air hoods shall also be indicated in the equipment list. Provide an appropriate catalog cut sheet(s) for all items of equipment having a logistical category codes of A, B, E, or F and any C and G items having unique utility requirements, structural support, or space requirements.

B.3.12 A sketch perspective drawing depicting the proposed structure as directed by the design agent and/or the using service. This sketch will be the basis for the subsequent rendering requirement.

B.3.13 The narrative portion of the submittal, calculations, and cost estimate shall be packaged in standard U.S. 3-ring binders with labeled subject dividers, sequential page numbers, and table of contents.

B.3.14 Value Engineering Study (VE). Conduct Value Engineering (VE) study during design following the S-3 submission in accordance with DoD Directive 4245.8. Value Engineering Studies consist of investigations of certain high-cost areas in a design to determine if an alternate way exists to achieve an improved design at a lower life-cycle-cost. The main objectives of VE studies are reduced life-cycle-cost and improved quality of design. The application of Value Engineering shall not result in lowering criteria or quality standards as established by the guidance in this document or reduction in the scope of the project.

B.4 35 Percent Design Submittal (S-4). This submittal is as a minimum 35 percent of the total design effort in all disciplines and includes a corrected and refined S-3 package based on the S-3 review. The reviewed S-4 will be submitted to DMFO by the Design Agent and the using Military Department. A-E participation may be required on large or complex projects. Final scope and PA (cost) shall be determined with this submission. The minimum requirements of this submission are the same as described for S-3 and a copy of the VE Study. Provide load, demand, equipment sizing, energy consumption, life cycle cost, life safety, and other calculations for all building systems and features as applicable, according to requirements in the text of this document, and the Design Agent's Medical Facilities Design Office/Center standards.

B.4.1 This is considered the "technical submission" and all issues regarding costs, Value Engineering Study (VE), constructability, phasing, and any other special studies must be resolved, though the results of all studies may not be incorporated prior to presenting this submission to DMFO for approval. Action taken on Value Engineering proposals must be included with this submission.

B.4.2 The narrative portion of the submittal, calculations, and cost estimate shall be packaged in standard U.S. 3-ring binders with labeled subject dividers, sequential page numbers, and table of contents. Drawings shall be at a minimum 1:100 SI (1/8 inch scale); however 1:50 SI (1/4 inch) scale may be necessary for clarity on equipment plans, mechanical and electrical equipment room layouts, complex rooms or departments, interior elevations. Half-size drawings will be provided as stipulated in the distribution schedule.

B.4.3 Rendering. A final rendering is prepared after 35 Percent Design Submission approval. A color photograph of the original rendering, approximately 5OO mm X 400 mm (20 x 16 inch) in a 700 mm X 500 mm (28 x 20 inch) brushed aluminum frame shall be sent to DMFO. The photograph is to reflect the 35 percent review comments and be titled, matted, framed, and glazed with nonglare tempered glass or plexiglas. Other photographs are to be distributed as scheduled by the Design Agent in coordination with the using Military Department at the prenegotiation conference.

B.5 Final Design (35 percent to 100 percent). The final design phase may be initiated only after approval of Concept Design by the DMFO. If, in the preparation of Contract Documents (CD's), it is necessary to deviate substantially from the approved Concept Design, such as the rearrangement of a major medical department or a change in the interrelationship of functional elements, design may be suspended and the pertinent facts and justifications concerning the deviations will be submitted for review and approval by DMFO.

B.5.1 Contract Documents (CD's). Final working drawings shall be prepared only to the scale necessary for clarity, good bidding, and ease of constructability. Where dictated by complexity, CD's shall be drawn to 1/4-inch to the foot. To reduce the sheer volume of production drawings, those areas and disciplines not requiring 1/4 scale drawings for bidding shall be prepared at 1/8 scale.

B.5.2 Comprehensive Interior Design (CID). The final design phase, at option of using Military Department, may include a Comprehensive Interior Design (CID) effort for furniture and accessory selection, layout and identification, and documentation for procurement. The Comprehensive Interior Design (CID) package is to be coordinated with the interior finishes and colors Structural Interior Design (SID) early in the final design phase so that the first submittal of the CID will be fully coordinated with the building design at S-5. Subsequent selections of furnishings and medical equipment are to be coordinated with the CID. See Glossary, para 4.14, and para 4.17 for expanded definitions of CID and SID.

B.5.3 65 Percent Submittal (S-5). On a case-by-case basis, DMFO may

request submission of 65 Percent Preliminary Working Drawings. The Design Agent's Medical Facilities Design Office/Center, shall develop the specific submittal requirements to define the S-5 level of design effort.

B.5.3.1 Comprehensive Fire Protection Design. All fire protection provisions shall be summarized and submitted as a separate plan supported by a fire protection design analysis, including fire protection drawings developed during the Concept phase of the design. The fire protection study shall include related design considerations and criteria that have been coordinated among all the affected disciplines and shall serve as the basis for the design, construction, and future operation of the building. If required by the Design Agent, a completed Statement of Construction will be provided at the completion of construction by the contractor.

B.5.3.2 Equipment Specifications. The AE shall develop specifications for all equipment that does not have current guide specifications. Update the specifications to permit procurement of the latest model of equipment. Develop the specifications to accommodate at least three reputable vendors of the same type equipment when practicable. Coordinate problem items with the using Military Department. Include the scope of services to be provided by mechanical and electrical contractors for installing government furnished equipment. The Joint Schedule Numbers (JSN) or the National Stock Numbers (NSN), within the MIL-STD 1691, shall not be used as substitutes for contract specifications and detail drawings.

B.5.4 100 Percent/Final Submittal (S-6). The Design Agent's Medical Facilities Design Office/Center, shall develop the specific submittal requirements to define the S-6 level of design effort. When the design is complete, the Design Agent will submit a copy of the final documents (i.e. drawings, specification, cost estimate, instructions to bidders, etc.) to DMFO. Along with this package, the Design Agent shall provide a memorandum to DMFO certifying that the design has been completed and that all technical requirements and cost criteria approved at the 35 Percent Design stage have been incorporated into the Final Design.